

ADVANCING LOW IMPACT DEVELOPMENT IN COASTAL SOUTH CAROLINA

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The NERRS Science Collaborative is committed to sharing information about the projects we fund in the most effective way we can. Updates about this project will be communicated through nerrs.noaa.gov, webinars, conferences, and meetings. If you would like to stay in touch with this project, contact our program coordinator: Cindy Tufts, cindy.tufts@unh.edu

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For the collaborative aspect, contact: Leigh Wood, Coastal Training Program Coordinator, North Inlet-Winyah Bay NERR, 843.901.9034 or Leigh. Wood @ belle.baruch.sc.edu

What's happening?

The Coastal Training Programs from the ACE Basin and North Inlet-Winyah Bay National Estuarine Research Reserves (NERR), have received \$329,943 to advance the practice of Low Impact Development (LID) in coastal South Carolina. The team will use the principles of Collaborative Learning to engage climate and ecosystem scientists, engineers, planners, landscape architects, and other professionals in developing an LID manual and technical trainings for decision makers faced with the challenge of protecting water quality and habitats in a time of intense development pressure and climate change. This project will develop tools and guidance for stormwater management practices that are based on local conditions and tailored to address specific barriers identified by stakeholders.

Why this project?

South Carolina is known for the beauty of its beaches and marshlands and the opportunities it offers for recreation. Popular places to live and visit, the state's coastal communities have experienced a near 20 percent increase in population in the last decade, and it is estimated that development is occurring almost twice as quickly.

Much of this development involves conventional practices that increase impervious surfaces—such as roads,



Sidewalk constructed with pervious pavers, a typical component of low impact development (LID).

parking lots and buildings—detain the stormwater runoff, and “pipe” it back into fresh water bodies and coastal waters. This approach can degrade the environments upon which tourism and other local industries depend, place infrastructure at risk from flooding, and deplete natural storage of freshwater for private wells and municipal supplies. These impacts are aggravated by the area's relatively flat landscape and a high water table that can easily be overwhelmed by large storms.

LID techniques can reduce these impacts by managing stormwater as close to its source as possible. However, state guidelines for these and other stormwater management practices are based on historic precipitation patterns and do not account for how these might change as the climate continues to shift. Communities might be aware of the environmental benefits of using LID techniques, but they lack expertise, guidance, and resources to implement them. This team will work with a range of stormwater decision makers to address such barriers and create tools and resources that will help these communities implement LID and reduce the impact of development on natural resources.

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About the funder

The NERRS Science Collaborative puts Reserve-based science to work for coastal communities coping with the impacts of land use change, stormwater, non-point source pollution, and habitat degradation in the context of a changing climate. Our threefold approach to connecting science to decision making includes:

- **Funding:** We award an average of \$4 million annually to projects that incorporate collaboration and applied science to address a coastal management problem.
- **Transfer of knowledge:** We are committed to sharing the knowledge generated by the local, place-based research we fund. If you're interested in following this project, contact cindy.tufts@unh.edu.
- **Graduate education:** We sponsor two fellowships in TIDES, a Master's of Science program at UNH that provides the skills needed to effectively link science to coastal decision making.

The program operates by a cooperative agreement between the University of New Hampshire (UNH) and the National Oceanic and Atmospheric Administration.

Learn more at....

[nerrs.noaa.gov/
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Aerial view of marshland with an adjacent community development, an example of balanced land use in South Carolina. (Photo: George Steele)

How will this project work?

This project will draw on knowledge and relationships developed through the Coastal Training Programs at the two South Carolina NERR sites, and other partners, which have held numerous workshops, technical demonstrations, and seminars to engage stormwater decision-makers about LID. An extensive needs assessment, jointly conducted by the two Reserves, has identified potential barriers and appropriate steps for developing an LID manual. It also spurred the formation of an LID Manual Committee, made up of diverse professionals and technical experts, to support manual development.

This project will use Collaborative Learning techniques to engage this committee, climate scientists, the Center for Watershed Protection, and South Carolina Sea Grant in working with an interdisciplinary group of stakeholders to design the manual so that it is relevant to the professional needs of its intended users, acts as a resource for effective planning and decision-making, and is appropriate for current and future landscape and climate conditions. In the process of developing the manual, the team will create the following resources and tools to support LID implementation in South Carolina:

- Modeling to support the integration of specific landscape and climate variables to guide future research and BMP design;
- A comprehensive, digital spreadsheet that will enable intended users to model how BMPs could impact stormwater runoff and to select techniques appropriate to their site;
- Support for updated urban planning and development regulations that will encourage the implementation of LID;
- The integration of climate change impacts, such as rainfall intensity, into BMPs design and guidance;
- Training on use of the manual for coastal communities.



Stormwater pond in a community design, one of the most common stormwater management practices in coastal South Carolina. (Photo: George Steele)